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Abstract: **BACKGROUND:** Musculoskeletal disorders (MSD) are a common cause of disability and absence from work. There is no consistent evidence in the literature regarding predictors for short- and long-term absences due to these disorders. **AIMS:** To investigate work-related factors influencing short- and long-term absences due to MSD in German-speaking countries. **METHODS:** The study is based on data from the Fourth European Working Conditions Survey. The study population included 2849 workers in German-speaking countries who participated in face-to-face interviews. Logistic regression models were used to determine the associations between possible risk factors and the occurrence of short- or long-term absence due to MSD. **RESULTS:** A tiring or painful working position was positively correlated with short- and long-term absenteeism due to MSD, whereas the freedom to decide when to take holidays was negatively associated with this phenomenon. Some psychosocial factors, such as the ability to apply one's own ideas at work, the ability to choose or change the speed or rate of work and the emotional demands of the job, had contradictory impacts on short- and long-term absenteeism due to MSD. **CONCLUSIONS:** The results of this investigation show that it is important to distinguish between predictors of short- and long-term absenteeism due to MSD.

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Correlates of short- and long-term absence due to musculoskeletal disorders

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Background	Musculoskeletal disorders (MSD) are a common cause of disability and absence from work. There is no consistent evidence in the literature regarding predictors for short- and long-term absences due to these disorders.
Aims	To investigate work-related factors influencing short- and long-term absences due to MSD in German-speaking countries.
Methods	The study is based on data from the Fourth European Working Conditions Survey. The study population included 2849 workers in German-speaking countries who participated in face-to-face interviews. Logistic regression models were used to determine the associations between possible risk factors and the occurrence of short- or long-term absence due to MSD.
Results	A tiring or painful working position was positively correlated with short- and long-term absenteeism due to MSD, whereas the freedom to decide when to take holidays was negatively associated with this phenomenon. Some psychosocial factors, such as the ability to apply one's own ideas at work, the ability to choose or change the speed or rate of work and the emotional demands of the job, had contradictory impacts on short- and long-term absenteeism due to MSD.
Conclusions	The results of this investigation show that it is important to distinguish between predictors of short- and long-term absenteeism due to MSD.
Key words	Job stress; musculoskeletal disorders; sick leave; working conditions.

Introduction

Sick leave due to musculoskeletal disorders (MSD) is a major health and social problem in industrial countries [1]. It is unclear whether established risk factors for the occurrence of MSD also play an important role in sick leave due to MSD [2].

Physical factors such as painful working conditions or heavy lifting have been reported to increase the risk of sick leave due to back MSD in some studies [3,4], but not in others [5]. Psychosocial factors such as job satisfaction [5], low control over work [3] and low co-worker support [5] have been found to be predictors of absence due to MSD. However, Elders *et al.* [4] reported no correlation between psychosocial work characteristics and absence due to MSD. Alexopoulos *et al.* [6] showed that individual and job characteristics influenced the decision to take sick leave due to back pain. There is

evidence that about one in five people experiencing an episode of back pain will decide to consult a primary care physician [7].

No core set predictors exist for sick leave due to MSD in general. Also, it is unclear whether the predictors for short- and long-term absenteeism due to MSD are the same, so further research is needed.

Methods

The study is based on data from the Fourth European Working Conditions Survey (<http://www.eurofound.europa.eu/ewco/surveys/index.htm>) from 2005 and comprises 2849 workers in German-speaking countries.

Sick leave attributed to MSD was assessed using the item (i) 'Over the past 12 months, how many days in total were you absent from work for reasons of health

problems?' Of the respondents who indicated absences from work for health reasons, we selected only those who had work-related backache and/or muscular pain in their shoulders, neck and/or upper/lower limbs. These were compared in the further analysis with respondents with no absences in the past 12 months; responders with absences from work for other health reasons were excluded. The questionnaire made distinction neither between self-certification and sickness certification by a physician nor between work days and calendar days. There is no standardized definition of short- and long-term absenteeism. On the basis of statistical considerations (minimal group sizes), we divided the 204 respondents with absenteeism due to MSD into a first group ($n = 155$) named 'short-term absences' (<20 days) and a second group ($n = 49$) named 'long-term absences' (>20 days). The predictors for absenteeism due to MSD included here were found to be significant in previous research [3,4] (Table 1).

In a first step, binary logistic regression analyses were performed, including all the variables listed in Table 1. In a second step, we performed binary logistic regressions in which all those variables were entered that had been identified as significant in the first step, whether for long- or short-term absenteeism due to MSD.

Results

The prevalence of MSD in the past 12 months was 20%, but only 7% of the respondents reported absences for this reason. Of the 2849 responders, 625 (22%) reported at least one episode of sick-listing in the previous year. Of the 204 (32%) persons who were sick-listed because of MSD, 58% were men. Their mean age was 41 (range 18–68), and 159 (78%) of them suffered simultaneously from back pain and muscular pain in the shoulders, neck and/or upper/lower limbs, while 22% only reported back pain. Subjects with absenteeism due to back pain tended to have a lower level of education and a lower or medium income.

The short-term absenteeism due to MSD model explained 20% of the variance and the long-term absenteeism model 23% of the variance (Table 2).

Discussion

In this study, several psychosocial factors had contrasting effects on short- and long-term absences. Of the five variables concerning the physical workload included in the analysis, 'tiring or painful working position' was found to be a significant factor for short- and long-term absenteeism due to MSD. High social support from superiors was associated with less short- and long-term absenteeism. High social support from colleagues was found to be significantly associated with more short-term absenteeism due to MSD. Social support, from superiors or

Table 1. Categories of potential risk factors

Physical workload
Are you exposed to vibrations from hand tools, machinery etc. at work?
Does your main paid job involve tiring or painful positions?
Does your main paid job involve lifting or moving people?
Does your main paid job involve carrying or moving heavy loads?
Does your main paid job involve repetitive hand or arm movements?
Social support, autonomy at work and job characteristics
Generally, does your main paid job involve meeting precise quality standards?
Generally, does your main paid job involve solving unforeseen problems on your own?
Generally, does your main paid job involve monotonous tasks?
Generally, does your main paid job involve complex tasks?
Generally, does your main paid job involve learning new things?
Are you able, or not, to choose or change your order of tasks?
Are you able, or not, to choose or change your speed or rate of work?
Can you get assistance from your colleagues if you ask for it?
Can you get assistance from your superior/boss if you ask for it?
Do you have an influence on the choice of your work partners?
Can you take your break when you wish?
Do you have enough time to get the job done?
Are you free to decide when to take holidays or days off?
At work, do you have the opportunity to do what you do best?
Does your work give you the feeling of a job well done?
Are you able to apply your own ideas in your work?
Do you have the feeling that your work is useful?
Do you find your job intellectually demanding?
Do you find your job emotionally demanding?
I might lose my job in the next 6 months.
I am well paid for the work I do.
My job offers good prospects for career advancement.
I feel 'at home' in this organisation.
I have very good friends at work.
Individual, socio-economic factors
Age
Income
Sex
Country
Employment sector

colleagues, was not a significant factor in predicting long-term absenteeism. Thus, researchers should take into account that long- and short-term absenteeism are influenced, at least partly, by different factors.

This is the first study in German-speaking countries in which this relationship was examined specifically for MSD. The database used included variables on most of the known work-related risk factors for MSD. There is sufficient face validity of the items used, but they are not as accurate as a validated scale. Cross-sectional studies only indicate the presence of a significant correlation but cannot differentiate between a cause and an effect.

Previous studies found a lack of control over job-related tasks to be directly related to more frequent spells of sick leave [8,9]. Similarly, the present study identified psychosocial aspects of work such as 'free to decide when to take holidays' and 'choice of working partners' to be

Table 2. Correlates for the occurrence of short- and/or long-term absenteeism due to MSD

Risk factors	Short-term absenteeism due to MSD (<i>n</i> = 1946)		Long-term absenteeism due to MSD (<i>n</i> = 1864)	
	Odds ratio	95% CI	Odds ratio	95% CI
Tiring or painful position	1.59***	1.44–1.76	1.73***	1.47–2.04
Complex tasks	1.45	0.88–2.39	0.55	0.26–1.19
Choose or change the speed or rate of work	0.44***	0.29–0.68	1.80	0.86–3.71
Assistance from colleagues	1.35*	1.10–1.66	1.20	0.85–1.71
Assistance from superior	0.76*	0.63–0.90	0.96	0.70–1.32
Choice of working partners	0.86	0.74–1.00	0.96	0.76–1.22
Free to decide when to take holidays	0.86*	0.76–0.99	0.70*	0.56–0.88
Able to apply own ideas at work	1.26*	1.06–1.50	0.73*	0.56–0.95
Emotionally demanding job	0.81*	0.69–0.95	1.51*	1.13–2.01
Age	1.07	0.85–1.35	1.77*	1.18–2.65

Significant factors are indicated by **P* < 0.05, ***P* < 0.01 or ****P* < 0.001.

negatively associated with short- and long-term absenteeism due to MSD. However, the opportunity to choose or change the speed or rate of work was positively associated with long-term absenteeism and negatively with short-term absenteeism. This study also confirms the findings of Morken [10], who also showed that social support was not a significant factor for long-term absenteeism.

It can be said that factors such as a tiring or painful position and the freedom to decide when to take holidays are important correlates of short-term as well as long-term absenteeism due to MSD and that the direction of the relationship is the same for both of them (short term and long term). The opportunity to apply one's own ideas at work and the emotional demands of the job are significant for both long- and short-term absenteeism due to MSD, but the direction of the association is inverse.

Key points

- Twenty per cent of the responders reported episodes of musculoskeletal disorders in the past 12 months, and 7% had absences due to musculoskeletal disorders in the past year.
- Some psychosocial factors had contradictory impacts on short- and long-term absenteeism due to musculoskeletal disorders.
- It is consequently important to distinguish between predictors of short- and long-term absenteeism in research and practice.

Conflict of interest

None declared.

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